INTEGRATED CIRCUIT **TOSHIBA** TECHNICAL DATA

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

TA7358AP

SILICON MONOLITHIC

FM FRONT-END

The TA7358AP is designed for a FM front-end application, which is suitable to a portable radio or a radio cassette.

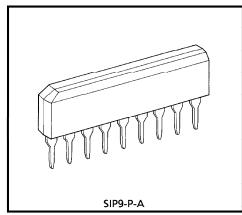
Comparing with conventional types, supply voltage dependence, overload characteristics and spurious radiation characteristics are improved.

FEATURES

Wide supply voltage range : $V_{CC} = 1.6 \sim 6.0 \text{V}$

Excellent supply voltage dependence of local oscillator

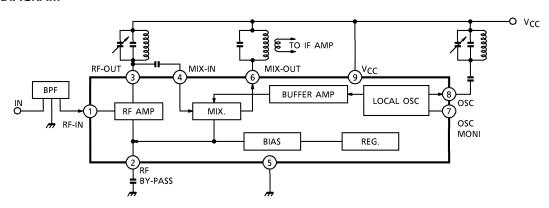
: Oscillation stop $V_{CC} = 0.9V$ (Typ.)



Weight: 0.92g (Typ.)

- Improved inter-modulation characteristics by double balanced type mixer circuit.
- Low spurious radiation.
- Built-in clampping diode for the local oscillator output.

BLOCK DIAGRAM



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EXPLANATION OF TERMINALS (Terminal voltage is DC voltage at Ta = 25°C, V_{CC} = 5V, and no signal)

PIN No.	SYMBOL	INTERNAL	TERMINAL VOLTAGE (V)
1	FM-RF IN	3	0.8
2	BY PASS	THE BIAS	1.5
3	FM-RF OUT	GND (5) (2)	5.0
4	MIX IN	GND (5)	1.5
5	GND	_	0
6	MIX OUT	cf. pin ④	5.0
7	OSC MONITOR	V _{CC} 9	4.3
8	OSC	7 T GND (5)	5.0
9	V _{CC}	_	5.0

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	Vcc	8	V
Power Dissipation	P _D (Note)	500	mW
Operating Temperature	T _{opr}	- 25∼75	٥
Storage Temperature	T _{stg}	- 55∼150	°C

(Note) Derated above 25°C in the proportion of 4mW/°C.

ELECTRICAL CHARACTERISTICS ($V_{CC} = 3V$, f = 83MHz, $f_m = 1kHz$, $\Delta f = \pm 22.5kHz$, $Ta = 25^{\circ}C$)

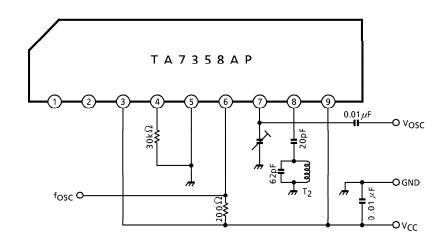
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CHARACTERISTIC		SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Curre	ent	lcc	2	V _{in} = 0	_	5.2	8.0	mA
- 3dB Limiting Sensitivity		V _{in} (lim)	2	_	_	3.0	7.0	dBμV EMF
Quiescent Se	ensitivity	QS	2	_	_	11.0	_	dBμV EMF
Conversion	Gain	GC	_		_	31	_	dB
Local OSC V	oltage	Vosc	1	f _{OSC} = 60MHz	90	165	220	mV _{rms}
Pin ① Impedance	Parallel Input Resistance	r _{ip1}	3		_	57	_	Ω
Pin ③	Parallel Output Resistance	r _{op3}	- 3 f=		_	25	_	kΩ
Impedance	Parallel Output Capacitance	c _{op3}		f = 83MHz	_	2.0	_	pF
Pin ④	Parallel Input Resistance	r _{ip4}			_	2.7	_	kΩ
Impedance	Parallel Input Capacitance	Cip4			_	3.3	_	pF
Pin ⑥	Parallel Output Resistance	r _{op6}	- 3	f 70 70411-	_	100		kΩ
Impedance	Parallel Output Capacitance	c _{op6}]	f = 10.7MHz	_	4.8	_	pF
Local OSC Stop Voltage		V _{stop}	1	_	_	0.9	1.3	V

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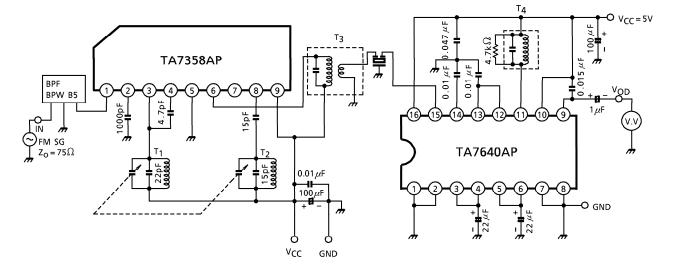
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TEST CIRCUIT 1



TEST CIRCUIT 2



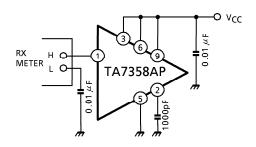
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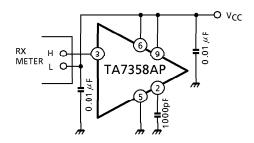
TEST CIRCUIT 3

Input output impedance

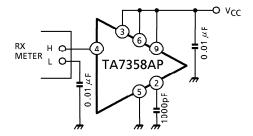
(1) r_{ip1}, c_{ip1}



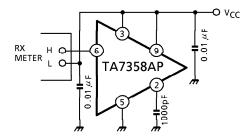
(2) r_{op3} , c_{op3}



(3) r_{ip4}, c_{ip4}



(4) r_{op6}, c_{op6}



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TEST CIRCUIT COIL DATA (Japan band for 76.0MHz to 108.0MHz)

COIL	fo	Qo	TURNS	CAPACITANCE	
T ₁ RF Coil	100MHz	100	0.5 mm ϕ $2\frac{1}{4}$ T Center Tap (Japan Band)	15pF (External)	FERRITE CORE
T ₂ OSC Coil	100MHz	100	$0.5 \text{mm} \phi$ 2 $\frac{1}{2} \text{ T}$ (Japan Band)	15pF (External)	FERRITE CORE
T ₃ IFT Coil	10.7MHz	115	①-③ 12T ④-⑥ 1T Wire $0.12 \text{mm} \phi$ UEW SUMIDA ELECTRIC Co., LTD. 5764 or equivalent	75pF	Pin (BOTTOM VIEW)
T ₄ Quad Coil	10.7MHz	150	$\textcircled{4}$ - $\textcircled{6}$ 14T Wire 0.12mm ϕ UEW SUMIDA ELECTRIC Co., LTD. 44M-933A or equivalent	47pF	(BOTTOM VIEW)

Band Pass Filter (BPF)

SOSHIN ELECTRIC Co., LTD. BPWB5

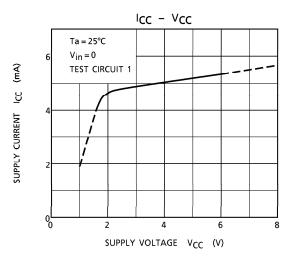
Tuning Cpacitor

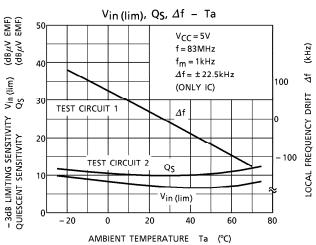
ALPS ELECTRIC Co., LTD. CB41EL933

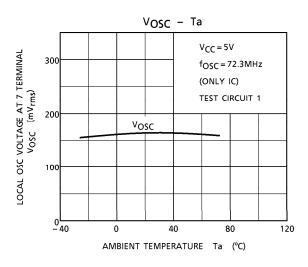
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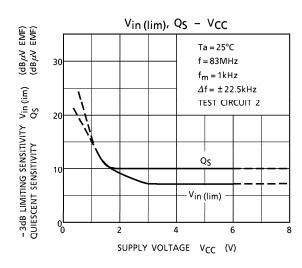
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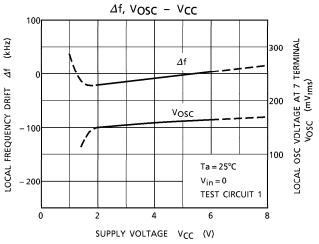
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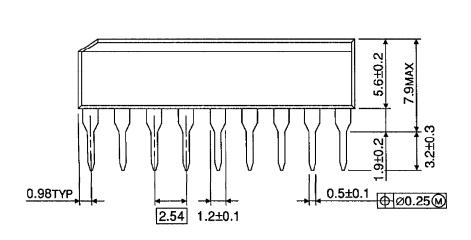
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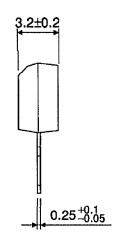
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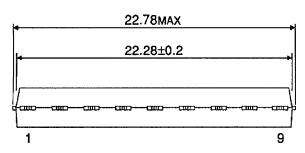
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OUTLINE DRAWING

SIP9-P-A Unit: mm







Weight: 0.92g (Typ.)

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